



**City of Santa Barbara
Integrated Pest Management Strategy**

2005 Annual Report

June, 2006



P.O. Box 1990
Santa Barbara, California, 93102
(805) 564-5434
www.santabarbaraca.gov

http://www.santabarbaraca.gov/Resident/Community/Parks_and_Beaches/Integrated_Pest_Management.htm

TABLE OF CONTENTS

I.	INTRODUCTION	2
II.	PEST PROBLEMS ENCOUNTERED	5
III.	TOTAL PESTICIDE USAGE	6
IV.	EXEMPTIONS	7
V.	REDUCTION OF PESTICIDE HAZARD	8
VI.	ALTERNATIVE PEST MANAGEMENT PRACTICES USED IN 2005.....	13
VII.	ALTERNATIVE PRACTICES PROPOSED FOR 2006	15
VIII.	EFFECTIVENESS OF ALTERNATIVE PRACTICES IMPLEMENTED.....	15
IX.	PROPOSED CHANGES TO PEST MANAGEMENT PRACTICES.....	16
X.	IPM ADVISORY COMMITTEE DISSENTIONS	16
XI.	CONCLUSION	17
XII.	ATTACHMENTS.....	18
A.	ATTACHMENT A: APPROVED MATERIALS LIST 2005.....	18

I. INTRODUCTION

In June 2003, the City of Santa Barbara (City) adopted a jurisdiction-wide Integrated Pest Management (IPM) Strategy. The City's IPM Strategy was developed to help reduce pesticide hazards on City property and promote effective pest management. This 2005 IPM Annual Report is the second Annual Report for the program.

The IPM Strategy requires the Annual Report to address each of the following areas: below.

Section II:	Types of pest problems that each Department has encountered.
Section III:	Types and quantities of pesticides used by each Department.
Section IV:	Exemptions currently in place and granted during the past year.
Section VI:	Alternatives currently used for phased out pesticides.
Section VII:	Alternatives proposed for adoption within the next 12 months.
Section VIII:	Effectiveness of any changes in practice implemented.
Section IX:	Planned changes to pest management practices.
Section X:	IPM Committee dissensions on any issue.

City Departments who applied pesticides or contracted with pesticide applicators prepared monthly pesticide and alternative use reports and participated in the preparation of this Annual Report. These monthly reports form the basis of the Annual Report and are available at the main offices of each department. They will be made readily available upon request. The data used to generate the total overall pesticide use is based upon total units (gallons or pounds) of all tiered materials (Tier 1 – 4). It should be noted that with the adoption of the PHAER Zone, the 2006 report will show an adjustment to the colored Tier System (Green, Yellow, Red) in order to conform to the PHAER Zone color model.

Staff and Citizen IPM Advisory Committees

The Staff IPM Committee continued to work effectively with the IPM Advisory Committee to administer the IPM Strategy, oversee pest management practices, and help prepare this Annual Report.

Department IPM Coordinators are appointed by department heads to serve on the Staff IPM Committee, which has representatives from Airport, Community Development, Fire, Parks & Recreation, Public Works, and Waterfront. The citizen IPM Advisory Committee included the following representatives in 2005: Eric Cardenas from the Environmental Defense Center (EDC), Greg Chittick, community at large, Oscar Carmona, community at large, and Brenton Kelly from the Pesticide Awareness and Alternative Coalition (PAAC).

2005 Program Highlights

In this second year of the IPM program, the City further reduced pesticide hazards by relying more heavily on green and lower risk materials and the use of non-chemical alternatives.

City-Wide

- Tier 1 materials were reduced by 92% City-wide in 2005, demonstrating that the City continues to reduce pesticide toxicity through the use of lower risk pesticides.
- The total number of pesticide units applied decreased 8.7%.
- The total number of pesticide applications decreased 33%, from 390 in 2004 to 261 in 2005.

Parks Division

- Tier 1 pesticides were completely eliminated in 2005, by relying more on non-chemical alternatives and reduced hazard pesticides. As Parks has been recording IPM data since 1999, this reduces overall pesticide use in City parks a total of 83.75% over the 7 years.
- The units of pesticide applications reduced by 6%, and the number of applications by 70% from 2004 to 2005.
- Use of Round-up decreased 50% compared to 2004, Parks is applying mulch more vigorously to abate weeds.

Public Works

- Mechanical traps were used instead of pesticides to control rodents. Heat treatments were used to control termites in public facilities.
- For bee control, M-PEDE, a Tier 2 insecticidal soap, replaced the Tier 1 pesticide Pyrethrin.
- For rodents, mechanical traps were predominantly used rather than Tier 1 pesticides.
- For mosquitoes, a lesser toxic Tier 3 and other non-chemical alternatives were used.

Airport

- No Tier 1 materials were applied in 2005. Less hazardous Tier 2 materials were used to abate mosquitoes, and routine use of six Tier 1 pesticides was eliminated, including Diazinon, Malathion, Merit, Reward, Trimec, and Simazine.
- Reduced-risk pesticides were used to abate mosquitoes, which are associated with the spread of the West Nile virus.

Golf

- Ten alternative non-chemical methods were used to increase plant health and reduce disease susceptibility.
- Above normal rainfall during the rain periods and more extensive Summer foggy weather conditions resulted in the need for slighter higher use of fungicides at the S.B. Municipal Golf Course

As the program continues into its third year, it is important to remember that the volume of pesticides applied will increase as more green materials, which require higher application levels for the same results, are substituted for high risk pesticides.

II. PEST PROBLEMS ENCOUNTERED

A variety of pests were encountered on City properties in 2005 as reviewed in the table below. Departments ranked their top three pest problems represented by the numbers 1, 2 and 3. Other pest problems encountered are checked (✓). Footnote annotations reference additional information which is provided below the table.

		Airport	Creeks	Golf	Parking	Parks	Public Works
Plant pests	Giant whitefly	✓		✓	✓	✓	
	Misc. plant insects	✓		2 ¹	3	✓ ⁴	
	Disease			1 ²	✓	✓ ⁵	
Specimen Tree Pests	Oak Worm			✓	2	✓	
	Psyllids			✓		✓	
Weeds	Invasives			3 ³		1 ⁶	
	General weeds	1			1	1	
	Perennial grasses		✓			1 ⁷	
Vertebrates	Gopher	3		✓		2	
	Ground Squirrel	3				1	
	Gulls/ nuisance birds			✓	✓	✓	
	Moles			✓		✓	
Human Health	Poison Oak					✓	
	Bees, yellow jackets, etc.			✓	✓	3	2
	Rats/ mice	✓		✓	✓	✓	3
	Mosquitoes	2				✓	1
Other	Termites						✓
	Roaches						✓

1. Golf reported these insect pest: Black Turfgrass Ataenius Beetle (Grubs).
2. Golf reported these plant diseases (fungus): Dollar Spot, Pink Snow Mold, Anthracnose, Summer Patch, and Yellow Patch.
3. Golf reported these invasive weeds: Clover.
4. Parks reported these plant insects: Lerp Psyllids, Mites, Oak Moths, Thrips, Aphids, Snails, Slugs, and Ants.
5. Parks reported these plant diseases: Leaf Spot, Mildew, Blight, Pink Bud Rot, Sooty Mold, Pythium, Armillaria, and Phytothora.
6. Parks reported these invasive weeds: Arrundo, Nutgrass, Kikuyu Grass, Clover, Oxalis, Malva, Foxtail, Spurge, Dandelion, Milkweed, Sow Thistle, Poa annua, Puncture Vine, Johnson Grass, and Poison Oak.
7. Parks reported the following perennial grasses: Crab, and Bermuda.

III. TOTAL PESTICIDE USAGE

The table below provides a summary of the pesticides applied on City property in 2005. It was compiled from data in the Monthly Pesticide Use Reports prepared by City departments. Pesticides are reported in either pounds or gallons depending on if they are dry or liquid. The column labeled "Type" includes the type of pesticide applied: Insecticide, Fungicide, Herbicide, Molluscicide, and Rodenticide.

Tier	Pesticide	Type	Airport		Golf		Parks		Public Works		Waterfront		Airport	Golf	Parks	Public Works	Watrefront
			Amount of Pesticide Applied										Number of Applications				
			Gallons	Pounds	Gallons	Pounds	Gallons	Pounds	Gallons	Pounds	Gallons	Pounds					
1	Daconil	Fungicide			7.5									3			
1	Heritage	Fungicide			1.5									1			
1	Prostar	Fungicide				10								1			
	Tier 1 Totals		0	0	9	10	0	0	0	0	0	0	0	5	0	0	0
2	Altosid	Insecticide		1,448.50						0.031			12			2	
2	Aquamaster - Rodeo	Herbicide	14.4										10				
2	Ditrac	Rodenticide		20.5								60	5				10
2	Golden Bear Oil 1111	Insecticide							6.2							28	
2	M-Pede	Insecticide							0.3							15	
2	Neem Oil	Fungicide					4.53								4		
2	Round-up Pro	Herbicide	150.3		2.5		6.18		0.125				47	4	33	2	
2	Surflan	Herbicide	82.5										7				
	Tier 2 Totals		247.2	1469	2.5	0	10.71	0	6.625	0.031	0	60	81	4	37	47	10
3	Bti Summit	Insecticide		0.176						14.16				1		38	
3	Bti Vectobac	Insecticide		115.2						1			29			1	
3	Citrall	Insecticide					1.25								1		
3	Kalligreen	Fungicide						6							2		
3	Sluggo	Molluscicide						100							4		
	Tier 3 Totals		0	115.376	0	0	1.25	106	0	15.16	0	0	29	1	7	39	0
4	Medallion	Fungicide				3.4								1			
	Tier 4 Totals		0	0	0	3.4	0	0	0	0	0	0	0	1	0	0	0
	Department Totals		247.2	1584.38	11.5	13.4	11.96	106	6.625	15.191	0	60	110	11	44	86	10
City-wide Totals			Gallons 277.285					Pounds 1778.967					Applications 261				

IV. EXEMPTIONS

Exemptions may be granted when a pest outbreak poses an immediate threat to public health or will result in significant economic or environmental damage from failure to use a pesticide on the *Phased-Out Pesticide List* or in a designated pesticide free zone. Exemptions may be requested for one time application or as a programmatic exemption for a single year. The exemption process is reviewed in the IPM Strategy.

- Twenty-seven (27) exemptions were requested in 2005 as summarized in the table to the right and as listed in the table below. A “No” in the used column means the exemption was approved, but the product was never applied.
- Four (4) requests were one-time exemptions and 23 were programmatic exemptions.
- Of the 26 requests approved, only 14 (or 54%) were applied. Thirteen (13) were granted where the use of alternative control methods was first used.
- Four (4) of the approved exemptions were for the use of food-grade, organic materials in pesticide free zones.
- For the 1 request denied, the IPM Advisory Committee advised Parks Staff to explore least toxic alternatives.

2005 Exemptions	Totals	Airport	Golf	Parks	Public Works	Waterfront
Proposed	27	5	5	15	1	1
Total passed	26	5	5	14	1	1
Applied:	14	3	4	5	1	1
Fungicide	5		4	1		
Herbicide	1	1				
Insecticide	2			2		
Rodenticide	2			1		1
Other	4	2		1	1	
Not applied	13	2	1	9		
Denied	1					
Fungicide	0					
Herbicide	1			1		
Insecticide	0					
Rodenticide	0					
Other	0					
Deferred	0					

Vote	Department	Material	Type	Tier	Pest	Exemption Type	Used	Site
Passed	Airport	Fumitoxin	Rodenticide	1	Rodents	Programmatic	No	
Passed	Airport	Aquamaster-Rodeo	Herbicide	2	Weeds	Programmatic	Yes	Runway & creek / wetland restoration areas
Passed	Airport	Altosid	Larvicide	2	Mosquito Larvae	Programmatic	Yes	Stagnant water areas
Passed	Airport	Vectobac G	Larvicide	3	Mosquito Larvae	Programmatic	Yes	Stagnant water areas
Passed	Airport	Clove Oil + 2-phenethyl propionate	Insecticide	4	Insects	Trial	No	
Passed	Parks	Citral-Lemon Garlic Oil	Insecticide	3	Insects	Programmatic	Yes	Pesticide free sites
Passed	Parks	Sluggo	Molluscicide	3	Snails / Slugs	Programmatic	Yes	Pesticide free sites
Passed	Parks	Dipel 2x	Insecticide	3	Insects	Programmatic	No	
Passed	Parks	Neem Oil	Insecticide	2	Insects	Programmatic	Yes	Pesticide free sites
Passed	Parks	Pond Saver	Algicide	3	Algae	Programmatic	No	
Passed	Parks	Kaligreen	Fungicide	3	Powdery Mildew	Programmatic	Yes	Pesticide free sites
Passed	Parks	Matran	Herbicide	2	Weeds	Programmatic	No	
Passed	Parks	ThermX 70	Surfactant	3	N/A	Programmatic	No	
Passed	Parks	Azatrol	Insecticide	2	Insects	Programmatic	No	
Passed	Parks	Rodentrol	Rodenticide	N/A	Squirrels	Programmatic	Yes	Shoreline / Leadbetter
Passed	Parks	Conserve	Insecticide	3	Insects	Programmatic	No	
Passed	Parks	Wilco	Rodenticide	2	Rodents	Programmatic	No	
Passed	Parks	Torch	Herbicide	4	Weeds	Programmatic	No	
Passed	Parks	Yellow Jacket Traps	Other	N/A	Yellow Jackets	One	No	
Denied	Parks	Round Up pro	Herbicide	2	Weeds	One	No	DFP
Passed	Waterfront	Ditrac	Rodenticide	2	Rats	Programmatic	Yes	Secure areas by marina entrances
Passed	Vector	Golden Bear Oil 1111	Larvicide	2	Mosquito Larvae	Programmatic	Yes	Stagnant water areas
Passed	Golf	Heritage	Fungicide	1	Anthracoze	Programmatic	Yes	Golf Course
Passed	Golf	Medallion	Fungicide	4	Pink Snow Mold	Programmatic	Yes	Golf Course
Passed	Golf	Prostar	Fungicide	4	Yellow Patch	Programmatic	Yes	Golf Course
Passed	Golf	Banner Maxx	Fungicide	1	Summer Patch	Programmatic	No	
Passed	Golf	Daconil	Fungicide	1	Dollar Spot	Programmatic	Yes	Golf Course

Comparison of Exemptions for 2004 and 2005

	2004	2005
Number of Exemption Requests	29	27
Number of Exemption Requests Approved	21	26
Number of Approved Exemption Requests Applied	16	14

The number of exemptions applied for in 2005 was reduced slightly while the percentage approved rose. This is in part due to a more efficient operation of the exemption process by Staff and the IPM Advisory Committee. The number of approved exemptions that were applied dropped significantly as a result of proactive planning, providing a longer period for alternatives to be effective.

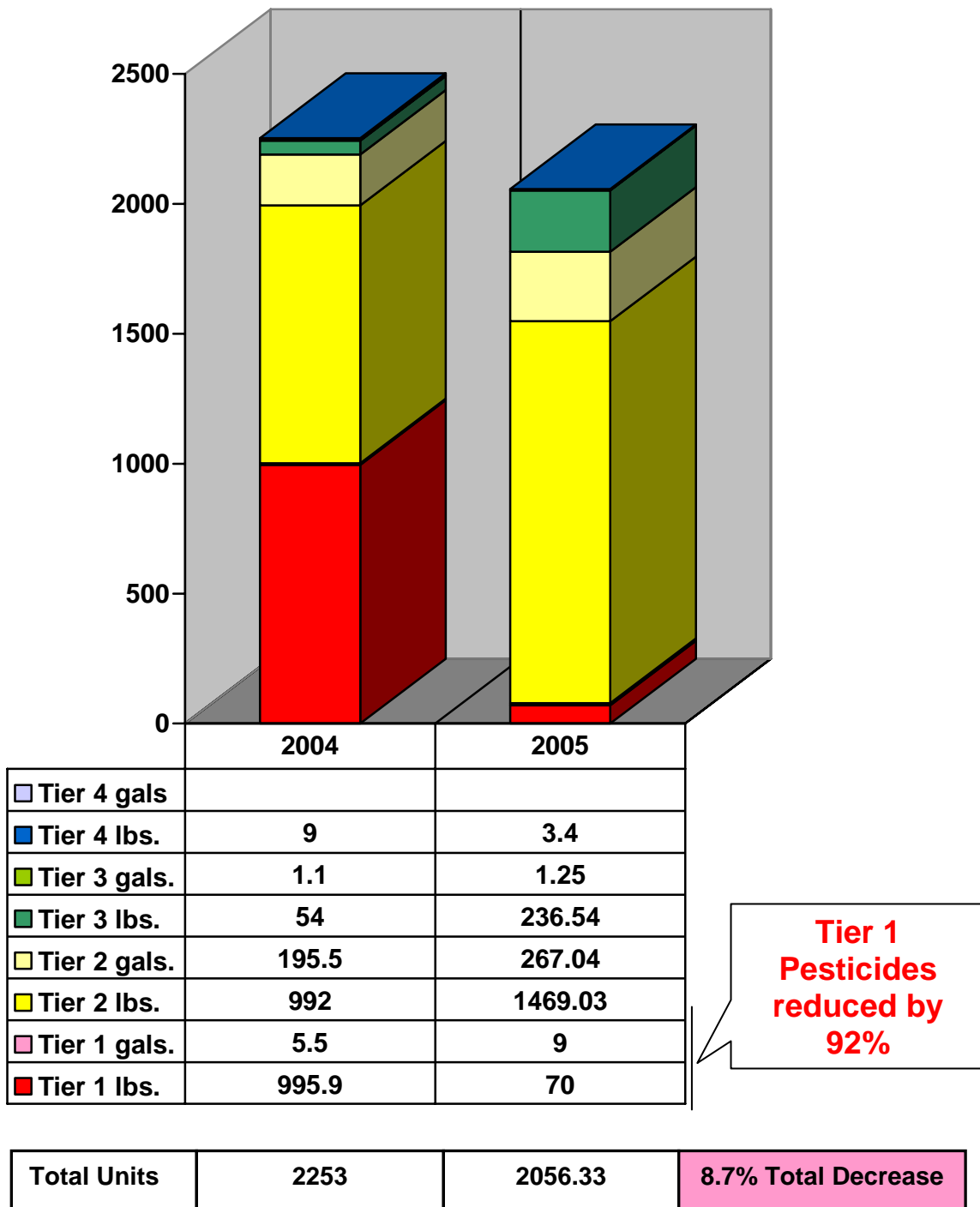
V. REDUCTION OF PESTICIDE HAZARD

Pesticide hazards were reduced in 2005 by decreasing the total volume and toxicity of pesticides applied by all Departments.

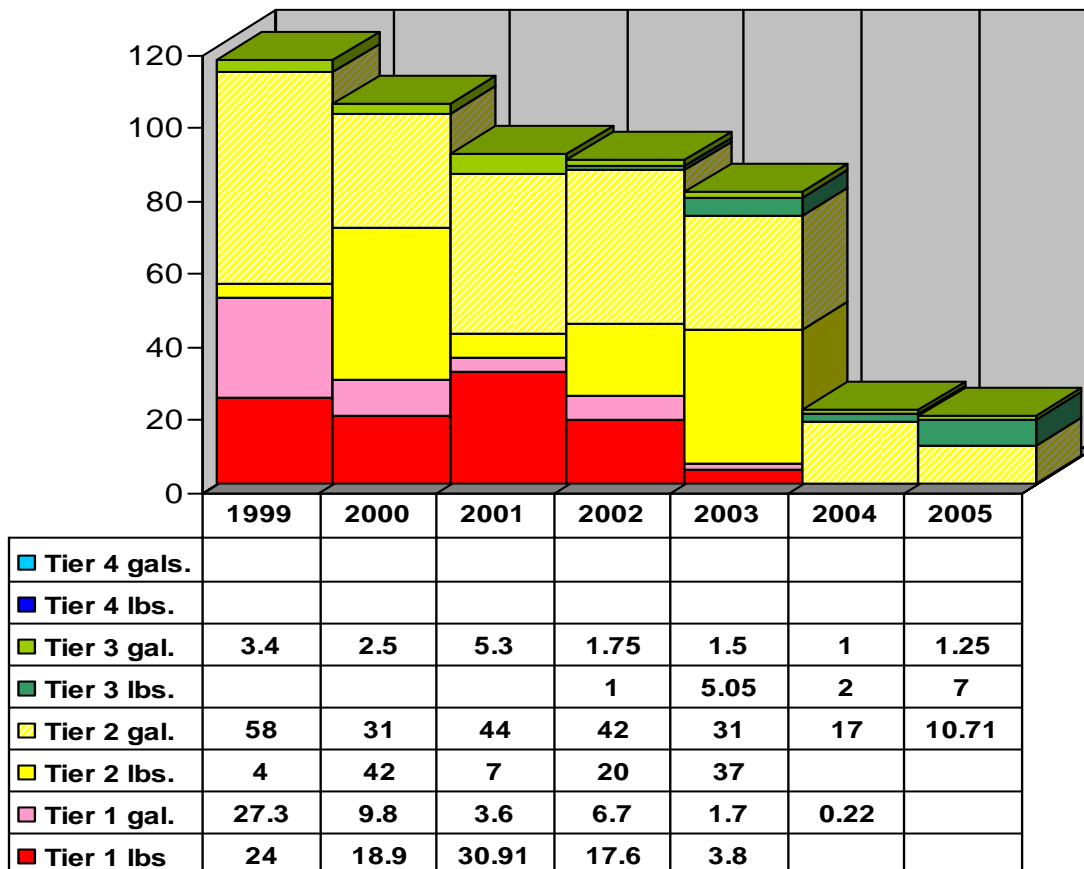
Base data for City-wide pesticide application was obtained in 2004. However, data is available for the Golf Division for the last four years and for the Parks Division for the last seven years. This data is plotted in the graphs on subsequent pages which depict a significant reduction in pesticide use.

It is important to note that because pesticide use will vary from year to year, an increase or decrease from the previous year does not necessarily indicate a long-term trend. Many factors affect the amount of pesticides applied in any one year. For example, weather always plays a role. A dry winter results in less weed growth and shorter weed-growing conditions in late winter and early spring. Whereas, dry winters drive gophers into irrigated City turf and shrub areas and probably contribute to a higher survival rate among gopher litters. Due to the high volume of late rain this winter, weed populations are expected to increase in 2006, and, as a result, higher pesticide usage is likely with a focus on using lower toxicity/green materials and non-chemical alternatives.

City-wide Pesticide Use By Tier: 2 Years



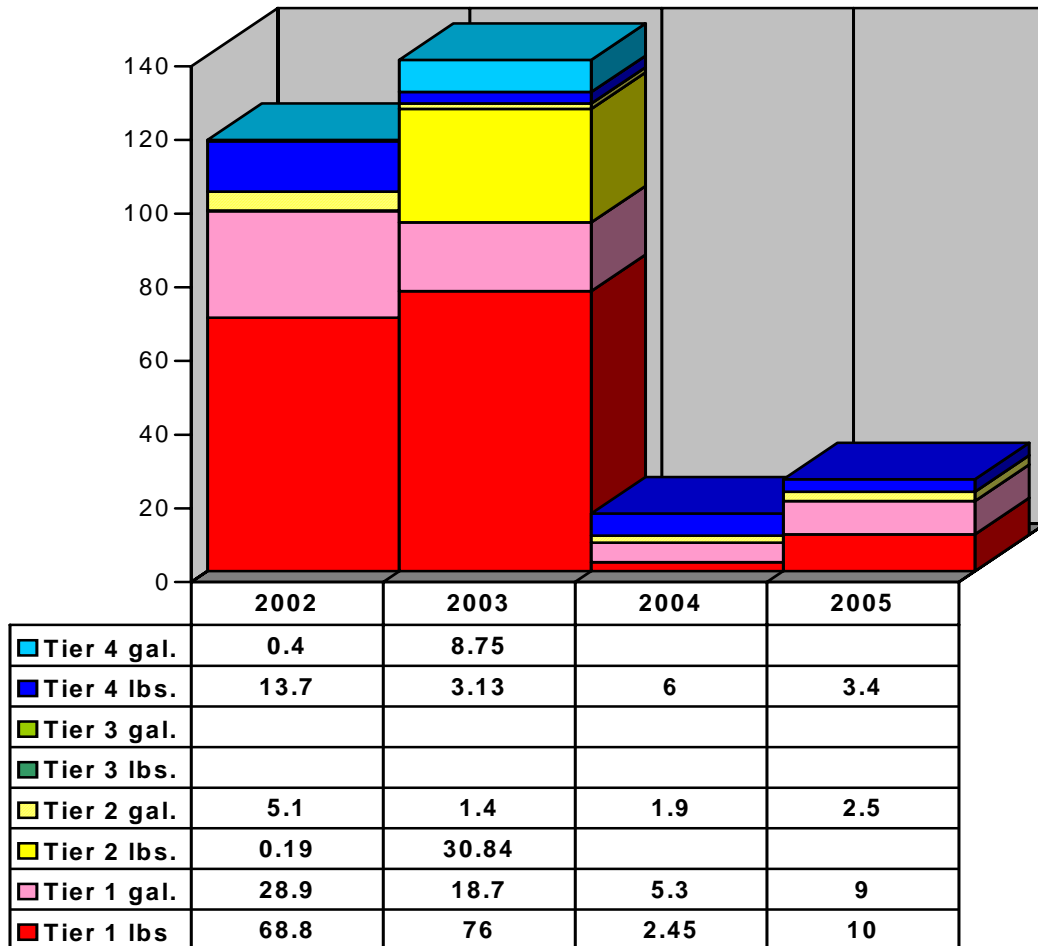
Parks Division Pesticide Use By Tier: 7 Years



Tier 1 pesticides were completely eliminated in 2005, by relying more on non-chemical alternatives and reduced hazard pesticides. As Parks has been recording IPM data since 1999, this reduces overall pesticide use in City parks a total of 83.75% over the 7 years. The units of pesticide applications reduced by 6%, and the number of applications by 70% from 2004. Use of Round-up decreased 50% compared to 2004. Parks is applying mulch more vigorously to abate weeds.

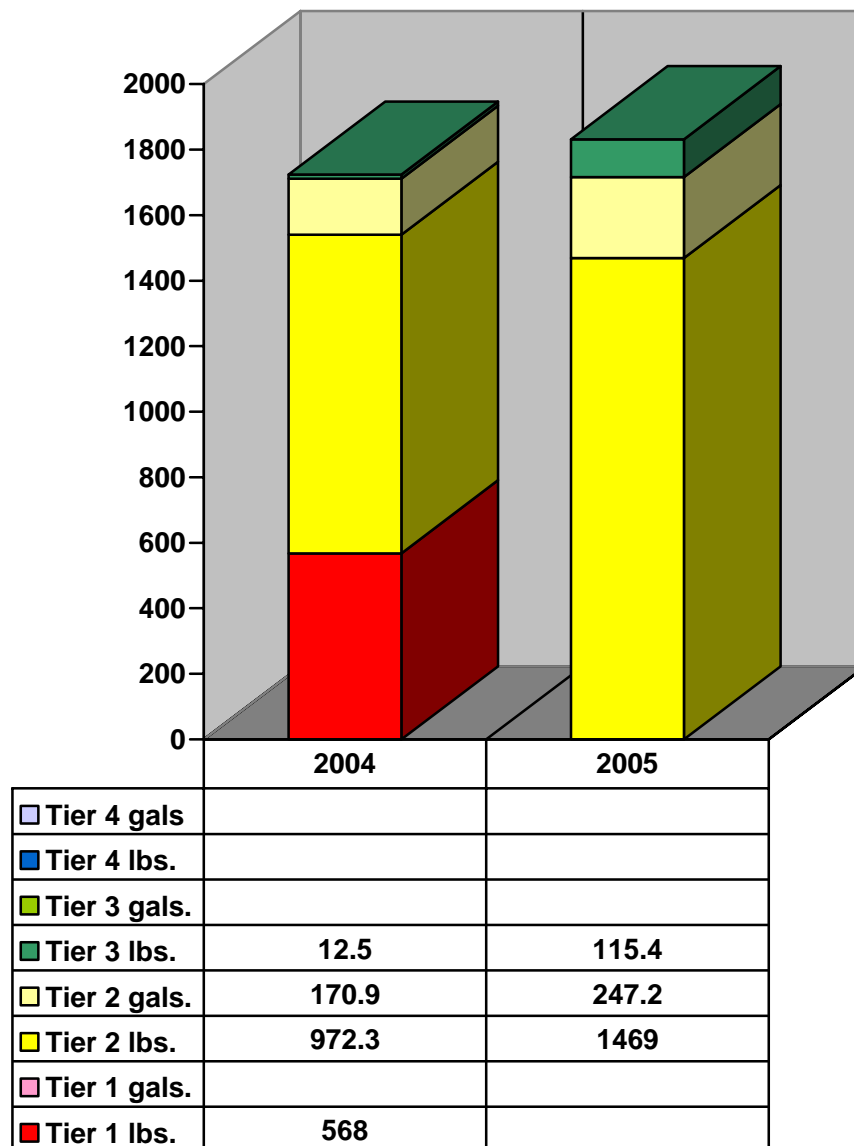
Note: One product, Sluggo, is shown in the chart above by active ingredient (not total product applied) as the inerts, carriers, and solids used to enable granular application were equal to or greater than 99% of total composition. The active ingredient, iron phosphate, is 1% of the total product. In 2005, one pound of ingredient is included in Tier 3.

Golf Division Pesticide Use By Tier: 4 Years



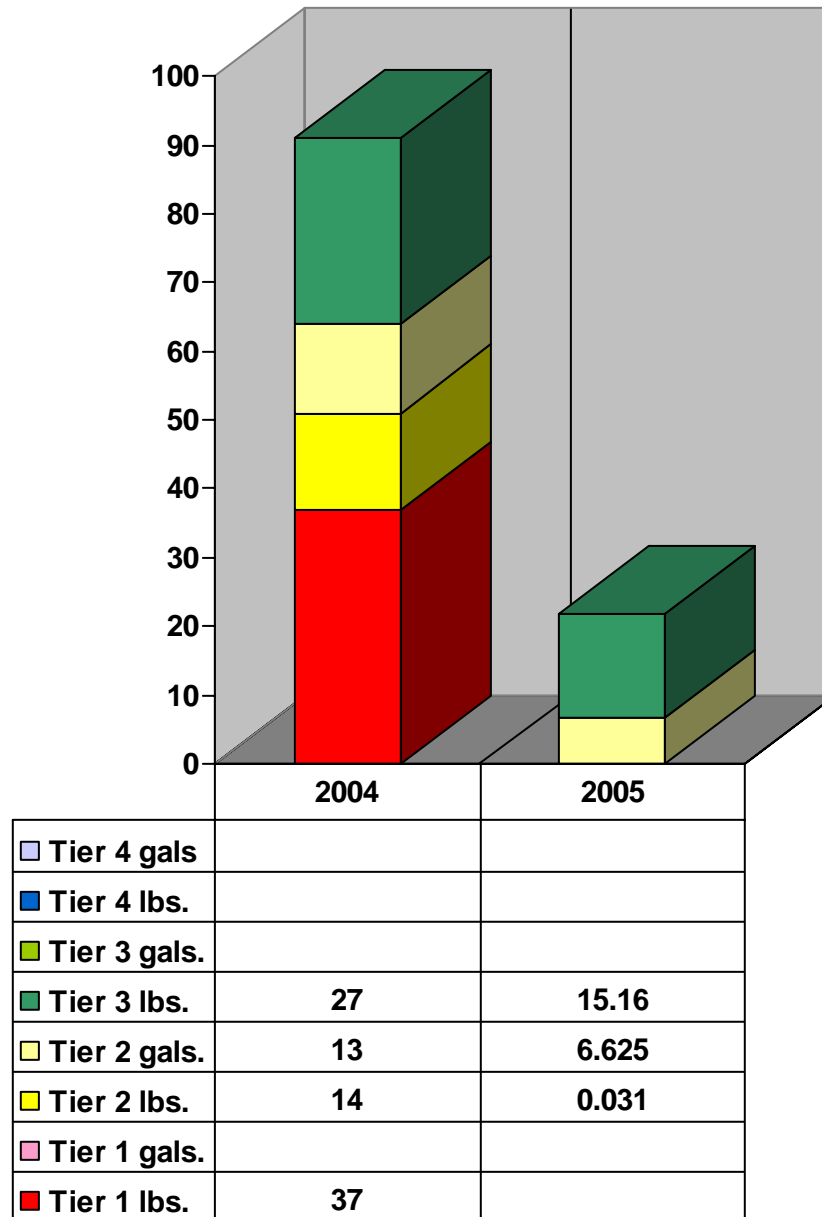
Pesticide use increased on the Golf Course greens due to higher use of fungicides to control Dollar Spot caused by the higher than normal rainfall and persistent Summer fog in 2005.

Airport Pesticide Use By Tier: 2 Years



The Airport saw an increase of yellow material applied in 2005 due to the use of Altosid XR. This product is used to control adult mosquito populations in the Goleta Slough. Adult mosquitoes are potential vectors of the West Nile Virus. Altosid XR is an extended release product with an effective life of up to 180 days. The Vector Control District pretreats Airport mosquito habitats prior to the rainy season and monitors Airport mosquito populations throughout the year. Altosid is activated as fall rains begin. In 2005, because of the above normal rainfall, mosquito habitats failed to evaporate within the 180 day efficacy period for the Altosid XR. As efficacy diminished, mosquito populations increased. Vector Control District personnel recommended and applied a second treatment of Altosid, almost doubling the amount of product applied versus 2004. The Airport was, however, able to eliminate the use of Tier 1 pesticides entirely for 2005.

Public Works Pesticide Use By Tier: 2 Years



Public Works saw a total of 76% decrease in the amount of pesticide units applied, and a complete elimination of Tier 1 pesticides between 2004 and 2005.

VI. ALTERNATIVE PEST MANAGEMENT PRACTICES USED IN 2005

Non-chemical pest management alternatives used in 2005 are reviewed in the table below. The use of non-chemical IPM alternatives was emphasized over pesticide applications. Hours reported for the total year are from the *Monthly Alternative Use Reports*. A check (✓) indicates the alternative was used but time was not tracked for it. Hours for some alternatives are underreported as staff learns to consistently log hours.

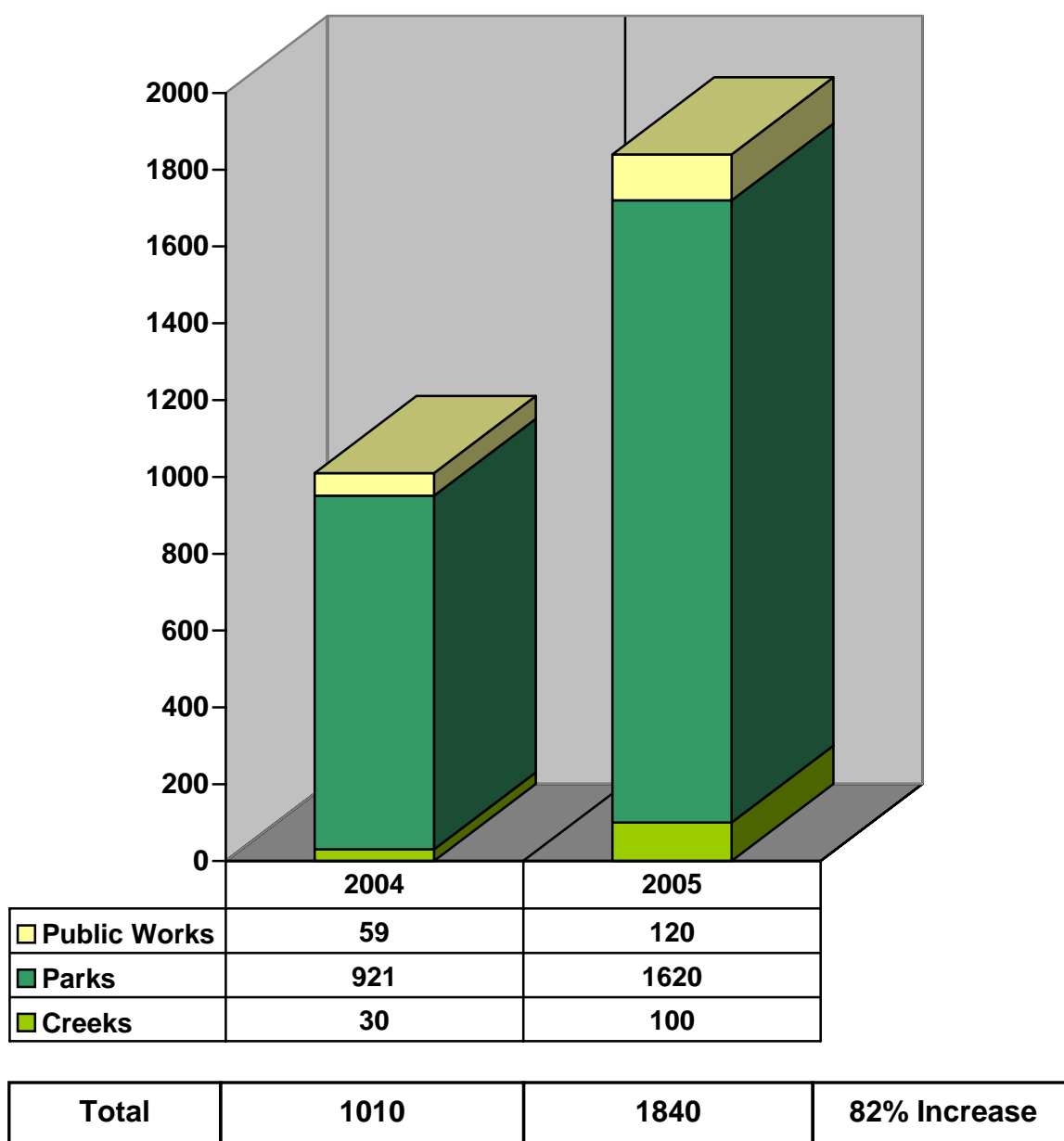
PEST	Alternative	Airport	Golf	Parking	Parks	Public Works	Citywide
WEEDS	Mulch & wood chips	48.5			268		316.5
	Weed fabric	✓			59		59
	Propane flame weeder				54		54
	Hot water/ steam				38		38
	Hand weeding	474.5	20	375	361		1230.5
	Weed whip	702.5	134		1172		2008.5
	Habitat modification				445		445
	Irrigation Mgmt.	✓	✓	✓	✓		
	Host plants squeeze out	6					6
PLANT PESTS	Irrigation Mgmt.	✓	✓	✓	✓		
	Compost tea/microbial in.		74		14		88
	Enhance plant health		287.5				287.5
	Worm castings				53		53
	Effective micro-organisms		42.5		132		174.5
	Wash off plants			✓	20		20
	Resistant varieties				✓		
	Remove plant/tree				✓		
GOPHERS	Mechanical traps	17			556		573
	Barriers	✓					
SQUIRRELS	EPA exempt bait	✓			400		400
	Rat Zapper Traps				400		400
RATS & MICE	Mechanical traps	35			418		453
	Cat				✓		
MOSQUITOES	Mosquito fish	✓			✓	✓	
	Remove stagnant water		✓		✓		
BEEES, WASPS, etc.	Bee Keepers					✓	
	Remove hives				✓	✓	
OTHER	Glue traps/roaches				✓		
	Raise thresholds	✓	✓		✓		
Total Hours		1,283.5	558	375	4,390		6,606.5

The pilot projects begun in 2004 were continued in 2005. See IPM 2004 Annual Report for details. Pilot projects have been a worthwhile investment of staff time and resources providing greater understanding of effective, non-toxic alternatives. As a result of these projects, several new alternatives were adopted.

Mulch has been found to be effective in suppressing the growth of annual weeds. The Parks Division significantly increased its application of mulch in 2005. The table to the right shows the types of mulch applied as part of the mulching pilot project and weed management strategies for 2005.

Yards of Mulch by Type	Creeks	Parks	Parking	City Totals
Artesia Sawdust		200		200
County Green Waste		120		120
Woodchips	100	1300	120	1520
Total Yards	100	1,620	120	1,840

Mulch Use Comparison: 2 Years



VII. ALTERNATIVE PRACTICES PROPOSED FOR 2006

In 2006, Departments will continue to seek “least toxic” alternatives that provide higher benefit to cost ratios as resources become increasingly strained. Departments will also continue to use alternatives found effective in the 2004 IPM Annual Report unless alternatives providing a higher benefit to cost ratio are found. Departments proposed the following for 2006:

- Airport will continue using and evaluating least toxic and green alternatives.
- Creeks will try using an EPA exempt herbicide for non-native weeds and perennials in restoration areas.
- Golf will continue to refine and develop organic approaches and monitor turf energy levels, apply compost-tea to greens and pursue other green alternatives.
- Parks will continue using and evaluating least toxic and green alternatives.
- Public Works-Vector Control proposed no additional alternatives for 2006 at this time.

VIII. EFFECTIVENESS OF ALTERNATIVE PRACTICES IMPLEMENTED

In general, the majority of alternative practices used are more labor intensive, costly, and not as effective as Tier 1 and Tier 2 pesticides. Most provide only moderate control of pest populations. The effectiveness of alternatives for the biggest pest problems encountered is reviewed below.

- **Weeds:** a variety of non-chemical alternatives are used to provide moderate effectiveness and control including: weeding, weed whipping, mulching, mowing, flame torch (in designated safe areas), and the Aquacide Steam Weeder. These alternatives are significantly more labor and cost intensive and not as effective as chemicals.
- **Insects:** Results are mixed for combating insects. For some insects, there are no known effective non-chemical alternatives. Some alternatives can be very effective but expensive, such as removing non-resistant plants and replacing them with resistant varieties. Generally, non-chemical alternatives were found to be more labor intensive.
- **Disease:** No effective alternative has been found for most diseases. Where possible, staff focuses on preventative treatments to enhance plant health. Once disease strikes, pesticides are generally required to combat it.
- **Gophers:** For the most part, mechanical traps are being used City-wide. Traps have been found to be moderately effective and are more expensive than rodenticides due to higher costs of purchasing, installing, monitoring, and cleaning out traps.
- **Ground Squirrels** - Mechanical trapping using rat zappers is the primary method of control at this time. This method is not very effective at controlling populations. More effective alternatives are needed.
- **Mice/rats** – At this time, traps are the primary way of controlling this population. Traps have been found to be moderately effective depending on population size and location and available food sources. Positive public perception seems to far outweigh the problems associated with using traps which includes: traps are much less effective than bait stations, more labor intensive, and more expensive.
- **Termites** – Building Maintenance now only uses heat treatments to control termites. Heat was found to be equally effective as pesticides and without the chemical residues. However, costs are 50% higher at this time.

IX. PROPOSED CHANGES TO PEST MANAGEMENT PRACTICES

Departments plan the following changes to pest management practices in 2006:

- An analysis of the Pesticide Hazard And Exposure Reduction (PHAER) Zone model in the City of Santa Barbara will be completed and presented to City Council in 2006 and implemented pending their approval. (Note: The PHAER Zone model was adopted by City Council on February 14, 2006.)
- Airport will standardize least toxic approaches for combating specific pests and will refine their strategy for controlling weeds on the airfield.
- Creeks will test an EPA exempt pesticide (specific food/household grade products to be determined) to abate non-native weeds and perennials in riparian area.
- Golf will try beneficial nematodes in April to combat Black Turfgrass Ataenius Beetle. During stress periods, compost tea will be applied more often and will be hand watering greens; both alternatives are labor intensive.
- Parks seeks to expand its use of alternative practices found effective in 2004. \$50,000 was added to general funding for IPM sustainability improvement projects such as adding concrete mow strips to various parks. Parks will invest in having additional staff certified in the Green Gardener Program.
- Vector Control will continue with its use of and focus on alternative practices.

X. IPM ADVISORY COMMITTEE DISSENTIONS

In 2005, there was no IPM Advisory Committee dissention. A dissention is when a vote is not unanimous.

XI. CONCLUSION

Pesticide hazards have been significantly reduced in the last few years as a result of implementing the City's IPM Strategy through a variety of methods such as:

- Decreasing the volume of pesticides applied and the number of applications.
- Decreasing the toxicity of pesticide management alternatives by relying more greatly upon non-chemical and lower risk alternatives.
- Establishing pesticide free (green) zones.
- Phasing out pesticides and virtually eliminating Tier 1 pesticides.
- Focusing on spot treatments rather than broadcast.
- Increasing pest thresholds.
- Decreasing maintenance standards and aesthetics.

The greatest reductions were in the use of the most hazardous (Tier 1) pesticides. The City has, therefore, decreased the potential hazards to humans, wildlife, and the environment associated both in acute and chronic toxicity (carcinogenic, reproductive toxicants, endocrine disruptors, etc.) that are associated with the use of Tier 1 pesticides.

It is critical for City staff to continue to find low risk, cost effective, viable alternatives so that pesticide hazards may be reduced further and the overall efficiency of IPM practices may increase. Therefore, staff must be supported in continuing to receive IPM training, to collaborate with regional IPM groups, and to research and evaluate the use and effectiveness of alternative materials and methods.

Also critical to reducing pesticide hazards in the City of Santa Barbara is the continuation of community outreach and public education. The City's comprehensive public IPM outreach was reviewed in detail in the 2004 IPM Annual Report and is ongoing. As part of this community outreach, the public will become more aware of the City's greater reliance upon low risk IPM alternatives, and know that if a City staff person is seen spraying, it is with an approved material.

XII. ATTACHMENTS

A. ATTACHMENT A: APPROVED MATERIALS LIST 2005

There were no changes in 2005 to the *Approved Materials List*.

Tier	Product Name	Active Ingredient	Type
1	Bayleton	triadimafon triazole	Fungicide
1	Fumitoxin	aluminum	Other
1	Manage	halosulfuron methyl	Herbicide
1	Quick Pro	glyphosate/diquat	Herbicide
1	Reward	diquat dibromide	Herbicide
1	Rubigan	fenarimol	Fungicide
1	Rubigan EC	fenarimol	Fungicide
1	Subdue	metalaxyl	Fungicide
1	Zp Rode	zinc phosphide	Other
2	Advanced Ant Bait	avermectin B-1	Insecticide
2	Agnique MMF	POE Isoocatadecanol	Insecticide
2	Aliette	fosetyl aluminum	Fungicide
2	Altosid B	methoprene	Other
2	Altosid L	methoprene	Other
2	Altosid P	methoprene	Other
2	Altosid XR	methoprene	Other
2	Aquamaster-Rodeo	glyphosate	Herbicide
2	Dormant	petroleum oil	Insecticide
2	Green Light	Neem oil	Insect/Fung
2	Matran 2	clove oil	Herbicide
2	M-PEDE	potassium salts of fatty acids	Insecticide
2	Rose Defense	Neem oil	Insect/Fung
2	Roundup Pro	glyphosate	Herbicide
2	Safticide Oil	petroluem oil	Insecticide
2	Stylet Oil	Petroleum distillates	Insecticide
2	Sulf-R-Spray	Parafin oil, sulfur	Fungicide
2	Superior Spray Oil	petroleum distillates	Insecticide
2	Surflan	oryzalin	Herbicide
2	Surflan AS	oryzalin	Herbicide
2	Triact	Neem oil	Insect/Fung
2	Trilogy	Neem oil	Insect/Fung
2	Wasp-Freeze	allethrim	Insecticide
2	Wilco Ground Squirrel Bait	diphacinone	Other
2	XL 2G	benefin; oryzalin	Herbicide
3	AllDown	citric acid, acetic acid, garlic	Herbicide
3	Bactimos Pellets	BT	Insecticide
3	Bactimos Wettable	BT	Insecticide

Tier	Product Name	Active Ingredient	Type
3	Bio-Weed	corn gluten	Herbicide
3	BurnOut 2	clove oil	Herbicide
3	Cinnamite	cinnamaldehyde	Insect/Fung
3	Conserve	spinosad	Insecticide
3	Dipel Flowable	BT	Insecticide
3	EcoExempt	Wintergreen Oil	Herbicide
3	Embark	mefluidide	Other
3	Kaligreen	potassium bicarbonate	Fungicide
3	Natura Weed-A-Tak	clove oil	Herbicide
3	Safer Soap	potassium salts of fatty acids	Insecticide
3	Sluggo	iron phosphate	Other
3	Summit BTI Briquets	BT	Insecticide
3	Teknar HP-D	BTI	Insecticide
3	Vectobac G	B.t.i.	Insecticide
4	Avid	Abamectin B-1	Insecticide
4	MAKI	bromadiolone	Other
4	Mecomec	Mecopropionic Acid	Herbicide
4	Medallion	fludioxonil	Fungicide
4	PrimoMax	Trinexapac Ethyl	Other
4	Prostar 70 WP	flutolanil	Fungicide
4	Proxy	ethephon	Other
4	VectoLex CG	bacillus sphaericus	Insecticide